Claims

1. Sensor arrangement for measuring anesthesia parameters from the head of a patient the sensor arrangement comprising a base element and an array of electrodes and an optical sensor for monitoring substances in tissues, in which sensor arrangement all electrodes and sensors are connected to a single connector or a series of connectors attached to the base element for connecting the sensor arrangement to a patient monitor.

2. The arrangement of claim 1 wherein the first and the second electrode of the array of electrodes are NMT stimulus electrodes located just posterior to the lower part of the pinna and just anterior to the tragus to stimulate the facial nerve.

3. The arrangement of claim 1 or 2 wherein three of the electrodes of the array of electrodes are used to measure EEG and EMG, the first of the three electrodes being located on the temple area between the corner of the eye and the hairline, the second electrode of the three electrodes being located above the eye at the same level as the third electrode of the three electrodes which is located between the eyebrows of the patient at the center of the forehead, about 4 cm above the nose, and the fourth electrode of the array of electrodes is located below the eye for enhancing the EEG and EMG measurement.

4. The arrangement of claim 3 wherein the electrodes are used to measure NMT response.

5. The arrangement of claim 1 or 2 wherein three of the electrodes of the array are used to measure EEG and EMG, the first of the three electrodes being located on location F2 or F4 of the International 10-20 system, the second electrode of the three electrodes being located between the eyebrows of the patient at the center of the forehead, about 4 cm above the nose, and the fourth electrode of the array of electrodes is located below the eye for enhancing the EEG and EMG measurement.

6. The arrangement of claim 5 wherein there is an additional electrode located on the temple area between the corner of the eye, and the additional electrode and the second and the third electrodes of the three electrodes are used to measure NMT response.

7. The arrangement of claim 1, 2, 3, 4, 5 or 6 wherein the optical sensor for monitoring substances in tissues is attached to the forehead.

8. The arrangement of claim 1, 2, 3, 4, 5 or 6 wherein the optical sensor for monitoring substances in tissues is attached to the root of the nose.

9. The arrangement of claim 1, 2, 3, 4, 5 or 6 wherein the optical sensor for monitoring substances in tissues is attached to the ear.

10. The arrangement of claim 1 wherein the optical sensor for monitoring substances in tissues is a SpO2 sensor.

11. Sensor arrangement for measuring anesthesia parameters from the head of a patient the sensor arrangement comprising a base element and an array of electrodes and an optical sensor for monitoring substances in tissues and a mechanical NMT sensor, in which sensor arrangement all electrodes and sensors are connected to a single connector or a series of connectors attached to the base element for connecting the sensor arrangement to a patient monitor.

12. The arrangement of claim 11 wherein the first and the second electrode of the array of electrodes are NMT stimulus electrodes located just posterior to the lower part of the pinna and just anterior to the tragus to stimulate the facial nerve.

13. The arrangement of claim 11 or 12 wherein three of the electrodes of the array of electrodes are used to measure EEG and EMG, the first of the three electrodes being located on the temple area between the corner of the eye and the hairline, the second electrode of the three electrodes being located above the eye at the same level as the third electrode of the three electrodes which is located between the eyebrows of the patient at the center of the forehead, about 4 cm above the nose, and the fourth electrode of the array of electrodes is located below the eye for enhancing the EEG and EMG measurement.

14. The arrangement of claim 13 wherein the mechanical NMT sensor is a piezoelectric sensor located over either the procerus, frontalis, corrugator or orbicularis muscle or a combination of these to record the response to the NMT stimulus.

15. The arrangement of claim 11 or 12 wherein three of the electrodes of the array are used to measure EEG and EMG, the first of the three electrodes being located on location F2 or F4 of the International 10-20 system, the second electrode of the three electrodes being located between the eyebrows of the patient at the center of the forehead, about 4 cm above the

nose, and the fourth electrode of the array of electrodes is located below the eye for enhancing the EEG and EMG measurement.

16. The arrangement of claim 15 wherein the mechanical NMT sensor is a mechanical piezoelectric sensor located over either the procerus, frontalis, corrugator or orbicularis muscle or a combination of these to record the response to the NMT stimulus.

17. The arrangement of claim 11, 12, 13, 14, 15 or 16 wherein the optical sensor for monitoring substances in tissues is attached to the forehead.

18. The arrangement of claim 11, 12, 13, 14, 15 or 16 wherein the optical sensor for monitoring the substances in tissues is attached to the root of the nose.

19. The arrangement of claim 11, 12, 13, 14, 15 or 16 wherein the optical sensor for monitoring substances in tissues is attached to the ear.

20. The arrangement of claim 11 wherein the optical sensor for monitoring substances in tissues is a SpO2 sensor.

21. Sensor arrangement for measuring anesthesia parameters from the head of a patient the sensor arrangement comprising a base element and an array of electrodes for measuring EEG, EMG and NMT, in which sensor arrangement all electrodes and sensors are connected to a single connector or a series of connectors attached to the base element for connecting the sensor arrangement to a patient monitor.

22. The arrangement of claim 21 wherein the first and the second electrode of the array of electrodes are NMT stimulus electrodes located just posterior to the lower part of the pinna and just anterior to the tragus to stimulate the facial nerve.

23. The arrangement of claim 21 or 22 wherein three of the electrodes of the array of electrodes are used to measure EEG and EMG, the first of the three electrodes being located on the temple area between the corner of the eye and the hairline, the second electrode of the three electrodes being located above the eye at the same level as the third electrode of the three electrodes which is located between the eyebrows of the patient at the center of the forehead, about 4 cm above the nose, and the fourth electrode of the array of electrodes is located below the eye for enhancing the EEG and EMG measurement.

24. The arrangement of claim 23 wherein the electrodes are used to measure NMT response.

25. The arrangement of claim 21 and 22 wherein three of the electrodes of the array are used to measure EEG and EMG, the first of the three electrodes being located on location F2 or F4 of the International 10-20 system, the second electrode of the three electrodes being located between the eyebrows of the patient at the center of the forehead, about 4 cm above the nose, and the fourth electrode of the array of electrodes is located below the eye for enhancing the EEG and EMG measurement.

26. The arrangement of claim 25 wherein there is an additional electrode located on the temple area between the corner of the eye, and the additional electrode and the second and the third electrodes of the three electrodes are used to measure NMT response.

27. Sensor arrangement for measuring anesthesia parameters from the head of a patient the sensor arrangement comprising a base element and an array of electrodes and a mechanical NMT sensor, in which sensor arrangement all electrodes and sensors are connected to a single connector or a series of connectors attached to the base element for connecting the sensor arrangement to a patient monitor.

28. The arrangement of claim 27 wherein the first and the second electrode of the array of electrodes are NMT stimulus electrodes located just posterior to the lower part of the pinna and just anterior to the tragus to stimulate the facial nerve.

29. The arrangement of claim 27 or 28 wherein three of the electrodes of the array of electrodes are used to measure EEG and EMG, the first of the three electrodes being located on the temple area between the corner of the eye and the hairline, the second electrode of the three electrodes being located above the eye at the same level as the third electrode of the three electrodes which is located between the eyebrows of the patient at the center of the forehead, about 4 cm above the nose, and the fourth electrode of the array of electrodes is located below the eye for enhancing the EEG and EMG measurement.

30. The arrangement of claim 29 wherein the mechanical NMT sensor is a piezoelectric sensor located over either the procerus, frontalis, corrugator or orbicularis muscle or a combination of these to record the response to the NMT stimulus.

31. The arrangement of claim 27 or 28 wherein three of the electrodes of the array are used to measure EEG and EMG, the first of the three

electrodes being located on location F2 or F4 of the International 10-20 system, the second electrode of the three electrodes being located between the eyebrows of the patient at the center of the forehead, about 4 cm above the nose, and the fourth electrode of the array of electrodes is located below the eye for enhancing the EEG and EMG measurement.

32. The arrangement of claim 21 wherein the mechanical NMT sensor is a piezoelectric sensor located over either the procerus, frontalis, corrugator or orbicularis muscle or a combination of these to record the response to the NMT stimulus.